

**Work Order ID 142779****\*142779\***

Page 1

Monday, March 21, 2016 11:52:17 AM

Item ID: D4150-3

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Arm Plate

Start Date: 4/28/2016 Start Qty: 8.00

**\*8\***

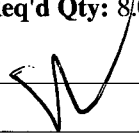
Cust Item ID:

Required Date: 4/29/2016 Req'd Qty: 8.00

**\*8\***

Customer:

Reference:

Approvals: Process Plan:  Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr             |                      |         |        |              |               |               |                  |                |
| D4150                          | B                        |                      |         |        |              |               |               |                  |                |

105

0.00

**\*105\***

Purchasing

Memo

0.00

Purchasing

ISSUE PO 31764  
CUT PER DRWG D4150 REV.B8 MAR 21 2016 DAS 13 9-89

115

Receive &amp; Inspect for Damage &amp; Mat'l Certs

0.00

**\*115\***

Packaging

Memo

0.00

Packaging

16x SP16-04-01

125

QC5- Inspect part completeness to step on W/O

0.00

**\*125\***

QC

Memo

0.00

Quality Control

(16)DAS 38 9-89  
APR 11 2016**P.T.O.**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                 |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | MRB (QSI042) Approval                           |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Completed By                                    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Lead hand / Supervisor<br>Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | QC / QA Coordinator<br>Approval                 |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>             Environment <input type="checkbox"/><br/>             Design <input type="checkbox"/><br/>             Doc/Data <input type="checkbox"/><br/>             Equip/Tooling <input type="checkbox"/><br/>             Handling/Pre <input type="checkbox"/><br/>             Material <input type="checkbox"/><br/>             Internal Transport <input type="checkbox"/><br/>             Tribal Knowledge <input type="checkbox"/><br/>             LOA <input type="checkbox"/><br/>             Substation <input type="checkbox"/><br/>             Past Expiry Date <input type="checkbox"/><br/>             Misidentified <input type="checkbox"/> </div> <div>             No Re-verification <input type="checkbox"/><br/>             Operator <input type="checkbox"/><br/>             Offset/Setup <input type="checkbox"/><br/>             Supplier <input type="checkbox"/><br/>             Training <input type="checkbox"/><br/>             Use for Testing <input type="checkbox"/><br/>             Poor Information <input type="checkbox"/><br/>             Rushing <input type="checkbox"/><br/>             Product Improvement <input type="checkbox"/><br/>             Process Improvement <input type="checkbox"/><br/>             Manufacturing Process <input type="checkbox"/><br/>             Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>             Pressure/Forced <input type="checkbox"/><br/>             Bending <input type="checkbox"/><br/>             Centre Not Concentric <input type="checkbox"/><br/>             Cracks <input type="checkbox"/><br/>             Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>             Cuffs <input type="checkbox"/><br/>             Crushing <input type="checkbox"/><br/>             Heat Treat <input type="checkbox"/><br/>             Wave/Twist in Tube <input type="checkbox"/><br/>             Marks/Chatter <input type="checkbox"/> </div> <div>             Temperature/Cure <input type="checkbox"/><br/>             Set-up <input type="checkbox"/><br/>             BOM/Route <input type="checkbox"/><br/>             Broken/Damage/Defect <input type="checkbox"/><br/>             Inspection Incomplete/Unqualified <input type="checkbox"/><br/>             Contamination <input type="checkbox"/><br/>             Countersink <input type="checkbox"/><br/>             Cut Too Short <input type="checkbox"/><br/>             Instructions Incomplete/Unclear <input type="checkbox"/><br/>             Drill Holes <input type="checkbox"/> </div> <div>             Power Loss/Surge <input type="checkbox"/><br/>             Folio/Program <input type="checkbox"/><br/>             Grain <input type="checkbox"/><br/>             Weld <input type="checkbox"/><br/>             Wrong Stock Pulled <input type="checkbox"/><br/>             Out of Sequence <input type="checkbox"/><br/>             Off-set <input type="checkbox"/><br/>             Misabeled <input type="checkbox"/><br/>             Fit/Function <input type="checkbox"/><br/>             Misaligned/off center <input type="checkbox"/> </div> <div>             Positioned Wrong <input type="checkbox"/><br/>             Outside Dimensions <input type="checkbox"/><br/>             Over/Under tolerance <input type="checkbox"/><br/>             Part Incorrect <input type="checkbox"/><br/>             Part Lost/Missing <input type="checkbox"/><br/>             Part Moved <input type="checkbox"/><br/>             Drawing <input type="checkbox"/><br/>             Finish <input type="checkbox"/><br/>             Misread <input type="checkbox"/><br/>             Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                 |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                 |  |

DQA: .

Date: 16.05.10



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: ~~16.05.10~~

Date: 16/05/12

Work Order update only ☐

|                                                                                                                          |                                                |                                                 |                                                            |                                                                |                                                        |                                              |                                      |                                                                              |  |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------|--------------------------------------|------------------------------------------------------------------------------|--|
| Work Order: <u>142779</u>                                                                                                |                                                | DISPOSITION                                     |                                                            | AGAINST DEPARTMENT/PROCESS                                     |                                                        |                                              |                                      |                                                                              |  |
| Part No. <u>D 4150-3</u>                                                                                                 |                                                | Rework <input checked="" type="checkbox"/>      |                                                            | Skid-tube <input type="checkbox"/>                             | Cross tube <input type="checkbox"/>                    | Water Jet <input type="checkbox"/>           | Engineering <input type="checkbox"/> |                                                                              |  |
| NCR No. <u>16-5694</u>                                                                                                   |                                                | Scrap <input type="checkbox"/>                  |                                                            | Machining <input type="checkbox"/>                             | Small Fab <input type="checkbox"/>                     | Prod. Eng. Coord. <input type="checkbox"/>   | Quality <input type="checkbox"/>     |                                                                              |  |
|                                                                                                                          |                                                | Use-as-is <input type="checkbox"/>              |                                                            | Thermoforming <input type="checkbox"/>                         | Finishing <input type="checkbox"/>                     | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>       |                                                                              |  |
|                                                                                                                          |                                                | Suspected Unapproved <input type="checkbox"/>   |                                                            | Large Fab <input type="checkbox"/>                             | Composite <input type="checkbox"/>                     | Supplier <input checked="" type="checkbox"/> |                                      |                                                                              |  |
| Date: <u>16-04-04</u>                                                                                                    | Step #: <u>105</u>                             | QTY Effective: <u>16</u>                        |                                                            |                                                                |                                                        | MRB (QS1042) Approval                        |                                      |                                                                              |  |
| Description Work Order Deviation                                                                                         |                                                |                                                 |                                                            | Disposition                                                    |                                                        |                                              |                                      | DAS<br>9<br>9-89 <u>16-04-04</u>                                             |  |
| Part was outsource to T.P.I. on P0317764.<br>At inspection some holes where found under size.<br><br>Ref. to NCR 16-5694 |                                                |                                                 |                                                            | • Re work (drill) holes to drawing.<br>• Fill out F.A.I. sheet |                                                        |                                              |                                      | Completed By                                                                 |  |
|                                                                                                                          |                                                |                                                 |                                                            |                                                                |                                                        |                                              |                                      | <u>16/04/11</u>                                                              |  |
|                                                                                                                          |                                                |                                                 |                                                            |                                                                |                                                        |                                              |                                      | Lead hand / Supervisor<br>Approval Verification<br>38<br>9-89<br>APR 11 2016 |  |
|                                                                                                                          |                                                |                                                 |                                                            |                                                                |                                                        |                                              |                                      | QC / QA Coordinator<br>Approval<br>38<br>9-89<br>APR 11 2016                 |  |
| Root Cause                                                                                                               |                                                | FAULT CATEGORY                                  |                                                            |                                                                |                                                        |                                              |                                      |                                                                              |  |
| Environment <input type="checkbox"/>                                                                                     | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>        | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                      | Positioned Wrong <input type="checkbox"/>              |                                              |                                      |                                                                              |  |
| Design <input type="checkbox"/>                                                                                          | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                         | <input checked="" type="checkbox"/> Outside Dimensions |                                              |                                      |                                                                              |  |
| Doc/Data <input type="checkbox"/>                                                                                        | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>  | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                 | Over/Under tolerance <input type="checkbox"/>          |                                              |                                      |                                                                              |  |
| Equip/Tooling <input type="checkbox"/>                                                                                   | <input checked="" type="checkbox"/> Supplier   | Cracks <input type="checkbox"/>                 | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                  | Part Incorrect <input type="checkbox"/>                |                                              |                                      |                                                                              |  |
| Handling/Pre <input type="checkbox"/>                                                                                    | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/> | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                    | Part Lost/Missing <input type="checkbox"/>             |                                              |                                      |                                                                              |  |
| Material <input type="checkbox"/>                                                                                        | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                  | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                       | Part Moved <input type="checkbox"/>                    |                                              |                                      |                                                                              |  |
| Internal Transport <input type="checkbox"/>                                                                              | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>               | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                               | Drawing <input type="checkbox"/>                       |                                              |                                      |                                                                              |  |
| Tribal Knowledge <input type="checkbox"/>                                                                                | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>             | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                            | Finish <input type="checkbox"/>                        |                                              |                                      |                                                                              |  |
| LOA <input type="checkbox"/>                                                                                             | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>     | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                          | Misread <input type="checkbox"/>                       |                                              |                                      |                                                                              |  |
| Substation <input type="checkbox"/>                                                                                      | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>          | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                 | Turning Sequence <input type="checkbox"/>              |                                              |                                      |                                                                              |  |
| Past Expiry Date <input type="checkbox"/>                                                                                | Manufacturing Process <input type="checkbox"/> |                                                 |                                                            |                                                                |                                                        |                                              |                                      |                                                                              |  |
| Misidentified <input type="checkbox"/>                                                                                   | Past Due <input type="checkbox"/>              | OTHER :                                         |                                                            |                                                                |                                                        |                                              |                                      |                                                                              |  |

Work Order ID 142779  
Monday, March 21, 2016 11:52:17 AM

\*142779\*

Page 2

Item ID: D4150-3 Accept \*N900040100\* Setup Start \*NS1\*  
Revision ID: Stop \*NS2\*  
Item Name: Arm Plate  
Start Date: 4/28/2016 Start Qty: 8.00 \*g\* Cust Item ID:  
Required Date: 4/29/2016 Req'd Qty: 8.00 \*g\* Customer:  
Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description                           | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|----------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 150                            | Identify as per dwg & Stock Location: <u>Sto87</u> | 0.00                 |         |        |              |               |               |                  |                |
| *150*                          |                                                    |                      |         |        |              |               |               |                  |                |
| Packaging                      | Memo                                               | 0.00                 |         |        |              |               |               |                  |                |
| Packaging                      |                                                    |                      |         |        |              |               |               |                  |                |
| 160                            | QC21- Final Inspection - Work Order Release        | 0.00                 |         |        |              |               |               |                  |                |
| *160*                          |                                                    |                      |         |        |              |               |               |                  |                |
| QC                             | Memo                                               | 0.01                 |         |        |              |               |               |                  |                |
| Quality Control                |                                                    |                      |         |        |              |               |               |                  |                |

16 MJS 1604-12

MJS APR 12 2016

MJS APR 12 2016

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |
|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|-----------------------|--------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |                                               |  |                       |                                                                                                                    |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  | MRB (QSI042) Approval |                                                                                                                    |  |
| Description Work Order Deviation                             |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                               |  |                       | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |
| Root Cause                                                   |                                                | FAULT CATEGORY                                                                                                                                                                     |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Positioned Wrong <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Outside Dimensions <input type="checkbox"/>   |  |                       |                                                                                                                    |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Over/Under tolerance <input type="checkbox"/> |  |                       |                                                                                                                    |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Part Incorrect <input type="checkbox"/>       |  |                       |                                                                                                                    |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Lost/Missing <input type="checkbox"/>    |  |                       |                                                                                                                    |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Part Moved <input type="checkbox"/>           |  |                       |                                                                                                                    |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Drawing <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Finish <input type="checkbox"/>               |  |                       |                                                                                                                    |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Misread <input type="checkbox"/>              |  |                       |                                                                                                                    |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Turning Sequence <input type="checkbox"/>     |  |                       |                                                                                                                    |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> | OTHER : _____                                                                                                                                                                      |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                               |  |                       |                                                                                                                    |  |

# Picklist Print

Monday, March 21, 2016 11:52:16 AM

Work Order ID: 142779

**\*142779\***

Parent Item: D4150-3

**\*D4150-3\***

Parent Item Name: Arm Plate

Start Date: 4/28/2016

Required Date: 4/29/2016

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP Rev:A 10.06.24 new issue DD verf:EC

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D4150-3P                        |                        | Purchased     | No          |                     |                  |                 | Each               | 0.0000         |             | 8            |               |                |        |
| <b>*D4150-3P*</b>               |                        |               |             |                     |                  |                 |                    |                | <b>**</b>   |              |               |                |        |
| Arm Plate                       |                        |               |             |                     |                  |                 |                    |                |             |              |               |                |        |
| M304S11GA                       |                        | Purchased     | No          |                     |                  | 100             | sf                 | 121.7250       | 0.0254      | 0.213894     |               |                |        |
| <b>*M304S11GA*</b>              |                        |               |             |                     |                  |                 |                    |                | <b>**</b>   |              |               |                |        |
| 304/316 0.125 Sheet             |                        |               |             |                     |                  |                 |                    |                |             |              |               |                |        |

*86x Sp 16 eu-01*  
**DAS**  
**13**  
**9-89**  
**APR 01 2016**

| <u>Location</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|-----------------|----------------|-----------------|
| MAT020          | 121.72498      |                 |
| M129545         | 24.82498       |                 |
| M129972         | 21.7           |                 |
| M134284         | 75.2           |                 |

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*M134604*

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

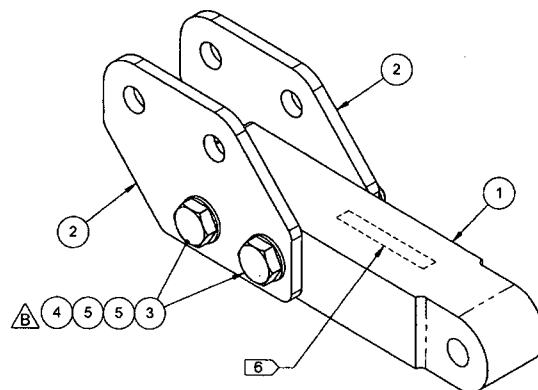
QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                    |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | MRB (QSI042) Approval                                                                                              |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |
| <b>Root Cause</b><br><div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                                                                                    |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                    |  |







**D4150-041 ATTACHMENT ARM ASSY**

**NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4150-041" USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.82 lbs

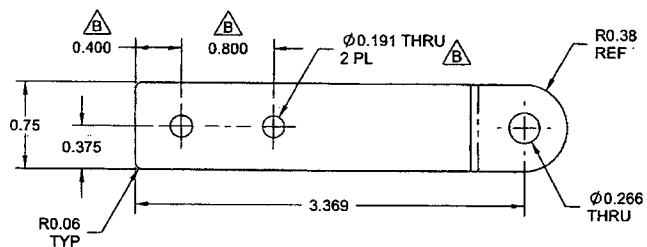
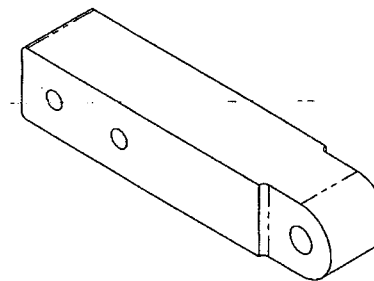
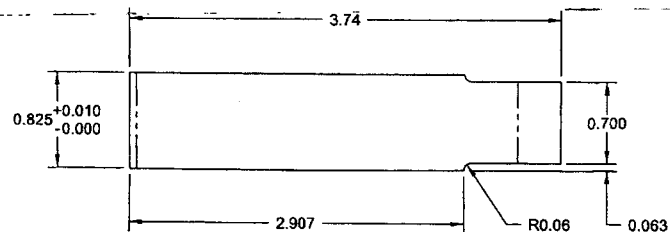
| ITEM | QTY<br>-041 | P/N           | DESCRIPTION         |
|------|-------------|---------------|---------------------|
|      | X           | D4150-041     | ATTACHMENT ARM ASSY |
| 1    | 1           | D4150-1       | ARM                 |
| 2    | 2           | D4150-3       | ARM PLATE           |
| 3    | 1           | AN3C13A       | BOLT                |
| 4    | 1           | MS21043-3     | NUT                 |
| 5    | 2           | NAS1149C0332R | WASHER              |

SHOP COPY  
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UNCONTROLLED COPY  
NOT SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

NO. 142779 MJS  
16-03-15

**RELEASED**  
2010-07-16  
MJS

| B                                                                                                                                                                                                                                                                                                                                                                                                                                            | REPLACED QTY(3) MS20615-4M20 WITH QTY(2) EACH AN3C13A, MS21043-3 AND QTY(4) NAS1149C0332R WASHER (ZN D3-1), Ø0.191 2 PL REPLACES Ø0.129 3 PL (ZN C6-2, C7-2, B4-3 & B5-3). REASON: SEE TR-D350-807-2 REV. B. | MB | 10.07.08 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----------|
| A                                                                                                                                                                                                                                                                                                                                                                                                                                            | NEW ISSUE                                                                                                                                                                                                    | MB | 10.06.18 |
| REV.                                                                                                                                                                                                                                                                                                                                                                                                                                         | DESCRIPTION                                                                                                                                                                                                  | BY | DATE     |
| DESIGN                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1                                                                                                                                                                                                            |    |          |
| DRAWN                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1                                                                                                                                                                                                            |    |          |
| CHECKED                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1                                                                                                                                                                                                            |    |          |
| MFG. APPR.                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1                                                                                                                                                                                                            |    |          |
| APPROVED                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1                                                                                                                                                                                                            |    |          |
| DE APPR.                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1                                                                                                                                                                                                            |    |          |
| DATE                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10.07.08                                                                                                                                                                                                     |    |          |
| <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA<br>DRAWING NO. <b>D4150</b> REV. B<br>SHEET 1 OF 3<br>TITLE <b>ATTACHMENT ARM ASSY</b> SCALE NTS<br><small>COPYRIGHT © 2010 BY DART AEROSPACE LTD<br/>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |                                                                                                                                                                                                              |    |          |



**D4150-1 ARM**

**RELEASED**  
2010-07-16  
MP

**NOTES:**

- 1) MATERIAL: 303/304/316 STAINLESS STEEL BAR PER ASTM A582 OR ASTM A276  
REF DART SPEC M304B OR M303B
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.60 lbs

|                                                                                                                                                                                                                                    |                 |                                        |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------|--------------|
| DESIGN                                                                                                                                                                                                                             |                 | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN                                                                                                                                                                                                                              |                 | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED                                                                                                                                                                                                                            |                 | DRAWING NO.                            | REV. B       |
| MFG. APPR.                                                                                                                                                                                                                         |                 | <b>D4150</b>                           | SHEET 2 OF 3 |
| APPROVED                                                                                                                                                                                                                           |                 | TITLE                                  | SCALE        |
| DE APPR.                                                                                                                                                                                                                           |                 | <b>ATTACHMENT ARM ASSY</b>             | NTS          |
| DATE                                                                                                                                                                                                                               | <b>10.07.08</b> | COPYRIGHT © 2010 BY DART AEROSPACE LTD |              |
| THIS DOCUMENT IS PROPRIETARY AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |                 |                                        |              |





Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

# PURCHASE ORDER

Purchase Order ID **PO31764**

Purchase Order Date 3/21/2016

PO Print Date 3/21/2016

Page Number 9 of 11

**Order From :**

VC-TPI001

TPI INDUSTRIES INC.  
148 RUE GOODFELLOW  
DELSON, QUEBEC J5B 1V4  
CANADA

**Ship To :** DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**

**Vendor Phone** 450-633-0484

**Ship To Contact**

**Ship To Phone**

**Ship Via:**

**Ship Acct:**

**Buyer**

Chantal Lavoie

**Customer POID**

**Customer Tax #** 10127-2607

**Terms**

Net 30

**Currency**

CAD

**FOB**

Destination-Collect

|    |          |   |                          |          |    |       |   |         |          |
|----|----------|---|--------------------------|----------|----|-------|---|---------|----------|
| 21 | D4149-1P | ✓ | Crosstube Lug Plate, Aft | 4/6/2016 | FN | 20.00 | ✓ | \$14.75 | \$295.00 |
|    |          |   |                          | Yes      |    | Each  |   |         |          |
|    |          |   |                          | 4/6/2016 |    |       |   |         |          |

CUT AS PER DWG D4149 REV. C  
B142902  
MATERIAL 304 SHEET 11 GA

**Line Total: \$295.00**

|    |          |   |           |          |    |      |   |        |         |
|----|----------|---|-----------|----------|----|------|---|--------|---------|
| 22 | D4150-3P | ✓ | Arm Plate | 4/6/2016 | FN | 8.00 | ✓ | \$5.00 | \$40.00 |
|    |          |   |           | Yes      |    | Each |   |        |         |
|    |          |   |           | 4/6/2016 |    |      |   |        |         |

CUT AS PER DWG D4150 REV. B  
B142779  
MATERIAL 304 SHEET 11 GA

**Line Total: \$40.00**

|    |          |   |                       |          |    |       |   |        |          |
|----|----------|---|-----------------------|----------|----|-------|---|--------|----------|
| 23 | D4151-1P | ✓ | Lower Hardpoint Plate | 4/6/2016 | FN | 40.00 | ✓ | \$5.95 | \$238.00 |
|    |          |   |                       | Yes      |    | Each  |   |        |          |
|    |          |   |                       | 4/6/2016 |    |       |   |        |          |

CUT AS PER DWG D4151 REV. C  
B141717  
MATERIAL 304 SHEET 11 GA

**Note:**

3/21/2016

# T.P.I. INDUSTRIES INC.

148 GOODFELLOW  
DELSON, QUÉBEC J5B 1V4  
CANADA  
Tel: (450) 633-0484  
Fax: (450) 633-0879

## Packing Slip

Packing Slip No.: 7436  
Date: 2016-03-29  
Page: 1

### Sold to:

#### Dart Aerospace

Chantal Lavoie  
1270 Aberdeen  
Hawkesbury, Ontario K6A 1K7  
Canada

### Ship to:

Dart Aerospace  
Chantal Lavoie  
1270 Aberdeen  
Hawkesbury, Ontario K6A 1K7  
Canada

Order No.: 31764

Sold By: JONATHAN LESSARD

Shipped By:

Ship Date: 2016-03-30

Tracking No.:

| Item No.            | Unit   | Description                       | Quantity |
|---------------------|--------|-----------------------------------|----------|
| D2281 ✓             |        | jack saddle ✓                     | 80 ✓     |
| D2585 ✓             |        | latch clamp ✓                     | 65 ✓     |
| D3637-041 ✓         |        | bracket assy ✓                    | 12 ✓     |
| D4060-1 ✓           |        | ski clamp ✓                       | 132 ✓    |
| D4176-1 ✓           |        | 429 clamp ✓                       | 8 ✓      |
| d2232-3 ✓           |        | d2232-3 basket hinge ✓            | 15 ✓     |
| d2581 ✓             |        | mounting bracket ✓                | 68 ✓     |
| D3191-1 → DB 98-1 ✓ | Chaque | fitting ✓                         | 10 ✓     |
| D3405-041 ✓         |        | ground handling lug ✓             | 32 ✓     |
| D3405-043 ✓         |        | ground handling lug ✓             | 6 ✓      |
| d3561-1 ✓           | Chaque | d3561-1 seal insert tool ✓        | 6 ✓      |
| d3912-5 ✓           | Chaque | d3912-5 eyebolt plate ✓           | 30 ✓     |
| d4021-1 ✓           | Chaque | d4021-1 handle plate ✓            | 14 ✓     |
| d4148-1 ✓           | Chaque | d4148-1 crosstube lug plate fwd ✓ | 44 ✓     |
| d4149-1 ✓           | Chaque | d4149-1 crosstube lug plate aft ✓ | 20 ✓     |
| d4150-3 ✓           | Chaque | d4150-3 arm plate ✓               | 8 ✓      |
| d4151-1 ✓           | Chaque | d4151-1 lower hardpoint plate ✓   | 40 ✓     |
| d4151-3 ✓           | Chaque | d4151-3 upper hardpoint plate ✓   | 42 ✓     |

Comment: Net / 30 from date of invoice 2% svc. chg. on invoices over 30 days

SP/b-a-d

# THYSSENKRUPP MATERIALS NA

DART AEROSPACE

STAINLESS STEEL SHEET 304L-2B DUAL GRADE  
 .1200 Nom X 48.0000" X 96.0000"  
 PART NO.

PO/Rel 31741

We certify that this is a true copy of the report  
 furnished by the producer of the metal, or data  
 resulting from tests made in approved labs.

## Certificate of Mill Test Results

BL PEC-983229-002

21Mar16

Pg 1/1



### METALLURGICAL TEST REPORT

North American Stainless Canada Inc.  
 740 Imperial Road North  
 Guelph, ON N1K1Z3  
 Canada

740 Imperial Road North

Certificate: 117938 1

Customer: 007206 001

Mail To:

THYSSENKRUPP MATERIALS  
 2821 LANGSTAFF ROAD  
 CONCORD, ON L4K5C6

Ship To:

THYSSENKRUPP MATERIALS  
 2821 LANGSTAFF ROAD  
 CONCORD, ON L4K5C6

Date: 11/26/2015 Page: 1

Steel: 304/304L

Finish: 2B

Corrosion: ASTM A262/14;180Bend-OK

Your Order: PEC271093

NAS Order: WN 0072789 07

#### PRODUCT DESCRIPTION:

STAINLESS STEEL COIL, C.R. ANNEALED & PICKLED. UNS 30400/30403  
 ASTM A240/15a,A480/14b,A666/15;ASME SA240/13,SA480/13,SA666/13  
 CHEM ONLY ON FOLLOWING ASTM: A276/13,A479/13a,A484/13a,A312/13  
 CHEM ONLY ON FOLLOWING ASME: SA312/13,SA479/13  
 AMS 5511H/5513J XMRK; MIL-5059D AMD3(X CRN MEAS); MIL-4043B  
 NACE MR0175/ISO 15156-3:2009 A, MR0103/07;Q96766D-A X MAG PERM  
 MIN. SOLUTION ANNEAL TEMP 1900F, WATER QUENCHED

#### REMARKS:

Mat'l is Free of Mercury Contamination. No weld repairs.  
 EN 10204:2004 3.1; RoHS 1 & 2 Compliant  
 Material is Free of Radioactive Contamination  
 Steel Making Process: EAF, AOD, & Cont. Casting  
 Product Mfg.by a Quality Mgt.Sys. in Conf. w/ISO 9001  
 \*Melted & Manufactured in the USA; Mat'l is DFARS Compliant

| Product Id | Coil #   | Skid # | Thickness | Width   | Weight | -----Length----- | Mark   | Pieces | Commodity Code |
|------------|----------|--------|-----------|---------|--------|------------------|--------|--------|----------------|
| 02X2A3 DA  | 02X2A3 D |        | .1163     | 48.0000 | 4.970  | SHEETS           | 096.00 | 32     |                |

Lab Accreditation Bureau, ISO/IEC 17025, Certificate# L2323

#### CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/08

| HEAT  | CM | C %   | CR %    | CU %  | MN %   | MO %  | N %   | NI %   | P %   | S %   |
|-------|----|-------|---------|-------|--------|-------|-------|--------|-------|-------|
| X2A3  | US | .0270 | 18.2380 | .3950 | 1.7650 | .3735 | .0830 | 8.0045 | .0340 | .0010 |
| SI %  |    |       |         |       |        |       |       |        |       |       |
| .2375 |    |       |         |       |        |       |       |        |       |       |

#### MECHANICAL PROPERTIES

| Product Id# | Coil #   | 1 d<br>o i<br>c r | UTS<br>KSI | 20C<br>KSI | .2% YS<br>KSI | 20C<br>KSI | ELONG<br>%-2" | %<br>Hard<br>RB | Tail<br>Hard |
|-------------|----------|-------------------|------------|------------|---------------|------------|---------------|-----------------|--------------|
| 02X2A3 DA   | 02X2A3 D | F T               | 92.66      |            | 44.92         |            | 51.32         | 86.00           | 87.00        |

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy  
 of the test methods used, the material meets the specifications stated. These results relate only to the items  
 tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical  
 Dept. Mgr.

*ABHJEET BHAVE*

ABHJEET BHAVE -

11/26/2015

STAINLESS STEEL SHEET 304L-2B DUAL GRADE  
 .0750 Nom X 48.0000" X 120.0000"  
 PART NO.

We certify that this is a true copy of the report furnished by the producer of the metal, or data resulting from tests made in approved labs.

Pg 1/1

Signed by



No. 600, Xinglong St., Jiaxing Yi., Gangshan Dist.,  
Kaohsiung City 82057, Taiwan (R.O.C)

Specification/Steel Grade : DIN EN 10028-7 1.4301/1.4307\_C  
Surface Finish : No.28

1. We hereby certify that material described herein has been manufactured and tested with satisfactory results in accordance with the requirement of the above material specification.
2. The material described above has been detected with free irradiation.
3. VUSON has established a QMS according to ISO 9001 which is certified by DNY CERT (reg.-no.0058-2002-XO-PGC-Kt1)
4. Inspection and gauge measurement: Satisfactory
5. The report can only be reproduced in full.
6. This certificate complies to 3.1/DIN EN 10204:2005.
7. The tests including "Tensile Test", "Intergranular Attack" (i.k. TEST) have been accredited by A2LA TESTING CERT #0958.02).

Manager of Quality Assurance Department

F. A. Hudson

JA-A-91